CLAIMS

1. A method of implementing soft handoff using hybrid ARQ comprising the steps of:

5   a. providing a plurality of base stations in communication with at least one RNC and in communication with a mobile station;

   b. transmitting a frame $P_{n,m}$ from the mobile station to a first of the plurality of base stations and to a second of the plurality of base stations;

10   c. at the first and second of the plurality of base stations, processing the frame $P_{n,m}$; and

   d. at the mobile station, determining whether to retransmit the frame $P_{n,m}$ or whether to transmit a next frame $P_{n+1,m}$ to the first and second of the plurality of base stations, wherein if the decision is to

15   retransmit frame $P_{n,m}$, transmitting frame $P_{n,m+1}$, and at the first and second of the plurality of base stations, combining frame $P_{n,m}$ with frame $P_{n,m+1}$ using H-ARQ and if the decision is to transmit the next frame $P_{n+1,m}$, transmitting the next frame to the first and second of the plurality of base stations.

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2. The method of claim 1 wherein the step of processing the frame $P_{n,m}$ comprises the step of decoding the frame $P_{n,m}$ at the first and second of the plurality of base stations.

25   3. The method of claim 1 wherein the step of processing the frame $P_{n,m}$ comprises the steps of at the first of the plurality of base stations, determining a first quality measure indicating whether there are any errors in the frame $P_{n,m}$ and at the second of the plurality of base stations, determining a second quality measure indicating whether

30   there are any errors in the frame $P_{n,m}$.

4. The method of claim 3 wherein the step of determining a first quality measure comprises checking a first CRC.

5. The method of claim 3 wherein the step of determining a second quality measure comprises checking a second CRC.

6. The method of claim 1 wherein the step of processing the frame $P_{n,m}$ comprises the steps of storing soft information of the frame $P_{n,m}$.

7. The method of claim 6 wherein the step of determining whether to retransmit the frame $P_{n,m}$ or whether to transmit a next frame $P_{n+1,m}$ to the first and second of the plurality of base stations comprises deciding to transmit the next frame $P_{n+1,m}$ if at least one of the first or second of the plurality of base stations decoded frame $P_{n,m}$ correctly.

8. The method of claim 7 further comprising the step of the mobile station setting a flush bit to "1", wherein the flush bit set to "1" instructs the first and second of the plurality of base stations to clear the soft information of frame $P_{n,m}$ from memory.

9. The method of claim 8 further comprising the step of erasing the soft information of frame $P_{n,m}$ at the first and second of the plurality of base stations.

10. The method of claim 1 wherein the step of determining whether to retransmit the frame $P_{n,m}$ or whether to transmit a next frame $P_{n+1,m}$ to the first and second of the plurality of base stations comprises the steps of deciding to retransmit the frame $P_{n,m}$ if neither of the base stations decoded the frame $P_{n,m}$ correctly and setting a flush bit to "0" to instruct the first and second of the plurality of base stations to combine frame $P_{n,m}$ with a retransmitted frame $P_{n,m+1}$.